AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A test apparatus for use in optimizing ~~performance of a system for optimizing a location-based service (LBS) by adjusting a maximum antenna range (MAR)~~ a location-based service (LBS) by updating a maximum antenna range (MAR) set for a base station in location-based service system including a position determination entity, the test apparatus comprising:

a key input part for inputting data to set the test apparatus to a conventional-GPS (C-GPS) operation mode or an assisted-GPS (A-GPS) operation mode;

a GPS antenna for receiving ~~a first GPS signal and a second GPS signal~~ GPS signals transmitted from at least one GPS satellite;

an RF (Radio Frequency) antenna for receiving an RF signal;

a C-GPS receiver for ~~extracting a first navigation data from the first GPS signal and generating a C-GPS geolocation information by using the first navigation data~~ receiving a first set of GPS signals through the GPS antenna, extracting first navigation data from the first set of GPS signals and generating a C-GPS geolocation information by using the first navigation data, wherein the C-GPS geolocation information includes the latitude and the longitude of measurement location and number of GPS satellites transmitting the first set of GPS signals;

an A-GPS receiver for ~~extracting a second navigation data from the second GPS signal and generating an A-GPS data by using the second navigation data~~ receiving a second set of GPS signals by using an assistance data received from the position determination entity, extracting second navigation data from the second set of GPS signals and generating an A-GPS data by using the second navigation data and the RF signal, wherein the A-GPS data includes number of the GPS satellites transmitting the second set of GPS signals and network ID and

base station ID of the RF signal; ~~and~~

an embedded board having a CPU for setting the test apparatus to the C-GPS operation mode or the A-GPS operation mode according to a mode key received from the key input part, controlling the C-GPS receiver to generate the C-GPS geolocation information in the C-GPS operation mode and controlling the A-GPS receiver to generate the A-GPS data in the A-GPS operation mode; and

a wireless modem for modulating the C-GPS geolocation information and the A-GPS data, generating and transmitting a MAR optimizing data signal for use in optimizing the MAR, wherein the MAR optimizing data signal comprises the C-GPS geolocation information obtained in the C-GPS operation mode and the A-GPS data obtained in the A-GPS operation mode.

2. (currently amended) The test apparatus according to claim 1, wherein the test apparatus further comprises a switch for ~~switching on and off to have~~ rendering the GPS antenna to be connected alternately to the C-GPS receiver and the A-GPS receiver under the control of the CPU.

3. (original) The test apparatus according to claim 1, wherein the test apparatus further comprises an RS-232C(Recommended Standard-232 Revision C) card which functions as a data interface between the A-GPS receiver and the embedded board.

4. (original) The test apparatus according to claim 1, wherein the key input part includes at least one mode setting key button for setting or switching operation modes of the test apparatus to the C-GPS operation mode or the A-GPS operation mode.

5. (original) The test apparatus according to claim 1, wherein the test apparatus further comprises a program memory for storing a GPS measurement program for setting or switching operation modes of the test apparatus to the C-GPS operation mode or the A-GPS operation mode.

6. (original) The test apparatus according to claim 5, wherein the GPS measurement program provides a log file generation function for storing the number of GPS data measurements, measurement time, coordinates of measurement points and measurement results as log files and a user interface function for displaying operation menu for setting or changing the operation mode and the measurement results.

7. (original) The test apparatus according to claim 1, wherein the test apparatus further comprises a mode status storage unit for managing operation modes by assigning a unique flag to a waiting mode, the C-GPS operation mode and the A-GPS operation mode.

8. (original) The test apparatus according to claim 1, wherein the test apparatus further comprises a LED(Light Emitting Diode) on/off part for indicating whether the test apparatus is in operation or not, there is an error or not and the first signal or the second signal is received or not.

9. (original) The test apparatus according to claim 1, wherein the test apparatus further comprises a battery for providing electric power for driving the test apparatus.

10. (original) The test apparatus according to claim 1, wherein the embedded board includes:

a UART(Universal Asynchronous Receiver/Transmitter) chip for receiving/transmitting data from/to an internal communication device of the test apparatus;

a RAM for temporarily storing the C-GPS geolocation information and the A-GPS data; and

a communication interface for receiving/transmitting data from/to a communication device through a USB port or a serial port.

11-13. (cancelled)

14. (currently amended) The test apparatus according to claim 1, wherein the A-GPS data includes identification codes

~~and number~~ of at least one GPS satellite transmitting ~~the second GPS signal~~the second set of GPS signals, measurement time and strength of ~~the second GPS signal signals~~the second set of GPS signals and pseudorange~~, network ID and base station ID~~.

15. (currently amended) A test apparatus for use in optimizing ~~performance of a system for optimizing a location-based service (LBS) by adjusting a maximum antenna range (MAR)~~a location-based service (LBS) by updating a maximum antenna range (MAR) set for a base station in location-based service system including a position determination entity, the test apparatus comprising:

a key input part for inputting data to set the test apparatus to a conventional-GPS (C-GPS) operation mode or an assisted-GPS (A-GPS) operation mode;

a GPS antenna for receiving ~~a first GPS signal and a second GPS signal~~ GPS signals transmitted from at least one GPS satellite;

an RF (Radio Frequency) antenna for receiving an RF signal;

a C-GPS receiver for ~~extracting a first navigation data from the first GPS signal and generating a C-GPS geolocation information by using the first navigation data~~receiving a first set of GPS signals through the GPS antenna, extracting first navigation data from the first set of GPS signals and generating a C-GPS geolocation information by using the first navigation data, wherein the C-GPS geolocation information includes the latitude and the longitude of measurement location and number of GPS satellites transmitting the first set of GPS signals;

an A-GPS receiver for ~~extracting a second navigation data from the second GPS signal and generating an A-GPS data by using the second navigation data~~receiving a second set of GPS signals by using an assistance data received from the position determination entity, extracting second navigation data from the second set of GPS signals and generating an A-GPS data by using the second navigation data and the RF signal, wherein the A-GPS data includes number of the GPS satellites

transmitting the second set of GPS signals and network ID and base station ID of the RF signal;

an embedded board having a CPU for setting the test apparatus to the C-GPS operation mode or the A-GPS operation mode according to a mode key received from the key input part, controlling the C-GPS receiver to generate the C-GPS geolocation information in the C-GPS operation mode and controlling the A-GPS receiver to generate the A-GPS data in the A-GPS operation mode; ~~and~~

a memory for storing the C-GPS geolocation information and the A-GPS data under the control of the CPU; and

a wireless modem for modulating the C-GPS geolocation information and the A-GPS data, generating and transmitting a MAR optimizing data signal for use in optimizing the MAR, wherein the MAR optimizing data signal comprises the C-GPS geolocation information obtained in the C-GPS operation mode and the A-GPS data obtained in the A-GPS operation mode.

16. (original) The test apparatus according to claim 15, wherein the memory is a nonvolatile memory.

17. (original) The test apparatus according to claim 16, wherein the memory includes a flash memory card.

18. (original) The test apparatus according to claim 17, wherein the flash memory card is at least one of a PCMCIA(Personal Computer Memory Card International Association) card, a compact flash card, a smart media card, a multimedia card and a secure digital card.

19. (original) The test apparatus according to claim 15, wherein the embedded board includes:

a UART(Universal Asynchronous Receiver/Transmitter) chip for receiving/transmitting data from/to an internal communication device of the test apparatus;

a RAM for temporarily storing the C-GPS geolocation information and the A-GPS data; and

a communication interface for receiving/transmitting data from/to a communication device through a USB port or a serial

port.

20. (original) The test apparatus according to claim 15 or claim 19, wherein the CPU stores the C-GPS geolocation information and the A-GPS data in the memory if the test apparatus fails to transmit in real-time the C-GPS geolocation information and the A-GPS data which are temporarily stored in the RAM.

21-23. (cancelled)

24. (currently amended) The test apparatus according to claim 15, wherein the A-GPS data includes identification codes ~~and number~~ of at least one GPS satellite transmitting ~~the second GPS signal~~the second set of GPS signals, measurement time and strength of ~~the second GPS signal signals~~the second set of GPS signals and pseudorange~~, network ID and base station ID~~.

25-32. (cancelled)

33. (currently amended) A method for controlling a test apparatus with a view to optimizing a location-based service (LBS) by ~~adjusting a maximum antenna range (MAR)~~updating a maximum antenna range (MAR) set for a base station, the method comprising the steps of:

(a) setting the test apparatus to an assisted-GPS (A-GPS) operation mode at each ~~measurement point~~measurement location and transmitting an identification code of a wireless base station which covers or is adjacent to the measurement ~~point~~location to a position determination entity, wherein the identification code is received by the test apparatus from the wireless base station;

(b) searching for and receiving ~~a GPS signal~~ a first set of GPS signals by receiving and analyzing an assistance data ~~through mobile communication networks~~from the position determination entity;

(c) generating and storing an A-GPS data, and switching the test apparatus into a conventional-GPS (C-GPS) operation

mode, wherein the A-GPS data includes number of GPS satellites transmitting the first set of GPS signals and network ID and base station ID obtained through an RF signal of a mobile communication network;

(d) searching for and receiving ~~a GPS signal~~a second set of GPS signals; ~~and~~

(e) generating a C-GPS geolocation information and ~~gathering and transmitting the C-GPS geolocation information and the A-GPS data to a position determination entity through the mobile communication networks~~, wherein the C-GPS geolocation information includes the latitude and the longitude of the measurement location and number of GPS satellites transmitting the second set of GPS signals;

(f) gathering the C-GPS geolocation information and the A-GPS data, and transmitting the C-GPS geolocation information and the A-GPS data as a MAR optimizing data for use in optimizing the MAR to the position determination entity through the mobile communication networks.

34. (original) The method according to claim 33, wherein at step (a) or step (c), the A-GPS operation mode or the C-GPS operation mode is set by operating at least one mode setting key button included in the test apparatus.

35. (original) The method according to claim 33, wherein at step (a) or step (c), the A-GPS operation mode or the C-GPS operation mode is set by using a GPS measurement program installed in the test apparatus.

36. (currently amended) The method according to claim 33, wherein at step (b), the test apparatus searches ~~the GPS signal~~ for the first set of GPS signals by using at least one GPS satellite location coordinate information included in the assistance data.

37. (original) The method according to claim 33, wherein at step (e), the test apparatus temporarily stores the C-GPS geolocation information and the A-GPS data in an embedded memory and retransmits after a prescribed time interval if the

test apparatus fails to transmit in real-time the C-GPS geolocation information and the A-GPS data.

38. (original) The method according to claim 37, wherein the C-GPS geolocation information and the A-GPS data stored in the memory are copied or stored in another storing device by using a cable connected to the test apparatus.

39. (original) The method according to claim 33, wherein the test apparatus starts operation in the C-GPS operation mode and then is switched to the A-GPS operation mode.